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This paper discusses the benefits of having gardens at schools. School gardens are a practical and effective way to connect children with nature, teach hands-on science and environmental education, and beautify barren school grounds. In order for all United States schools to establish gardens, school ground improvement must become an important educational and community priority. This goal could be achieved by the formation of a unified political and educational coalition lobbying for school ground improvement based on evidence that school gardens can improve the academic and social behaviors of students. Examples for school gardens and resources on gardening are presented. (SAH)

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Horticulture Rediscovered: the flowering of American schoolyards

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Horticulture Rediscovered: The Flowering of American Schoolyards

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The United States was founded on agrarian principles and has historically valued a strong horticultural education and experience for children at home and school. As our country became more urbanized in the 19th century, many children were less exposed to gardening and farm work. As a result, many schools created flower and vegetable gardens. It was believed that children derived significant educational, physical, emotional, and even spiritual benefits from gardening experience. Children learned about botany, food production, environmental relationships, as well as the values of patience, persistence, and responsibility. All traits necessary for successful gardening and a successful life.

The American school garden movement can be traced back to the mid-1800's. By the turn of the century, school gardens were no longer a fad, but considered an important component of a well-rounded education. School garden programs peaked during World War II with the creation of the Victory Garden program. The Victory Garden was a government sponsored program to encourage and reward home, school, and community fruit and vegetable gardens which were needed to help provide extra food for the war effort. This very successful and productive program demonstrated how a nation-wide, government program can effectively infludence social habits.

Cleveland had one of the best public school gardening programs due in part to the Victory Garden movement. Every Cleveland school had a garden, with many nearly half-an-acre in size. Children planted and tended the gardens from early spring through the end of school. Many teachers and students returned throughout the summer to tend the garden. All students helped with the harvest in the fall.

Children were encouraged to garden at home during the summer with the help of a free seed program administered by the schools. Children received free vegetable and flower seeds and could win ribbons and prizes in a city-wide harvest fair.

Up until the late 1960's and early 1970's, school gardens remained common at many schools. However, with the start of forced bussing programs to desegregate schools, as well as other shifting demographics and educational priorities, school gardening programs quickly began to erode.

Using Cleveland as an example, in 1967 there were approximately 163 schools that took part in a school gardening programs, while in 1997, only about 40 were active.

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Many parts of the country suffered similar declines. From the 1970's through early 80's, school gardening programs have been fairly dormant. However, more recently, due to renewed environmental awareness, new educational trends, and insights into how a school environment affects youth behavior and development, school gardening and beautification projects are enjoying a revival.

Here are the key factors involved in this revival:

Alienation from Nature

There is a growing alarm at today's children's lack of meaningful, direct, and long-term experience with nature. Children's information and experience with nature, especially urban and suburban children, is becoming primarily second hand through television, movies, and computer.

While children need to be technologically adept, they are lacking the transforming exposure to nature which is so important in their early years in order to develop an "environmental sympathy", respect, and curiosity about the natural world. They should experience the power, fragility, interconnectedness, and awe of nature to become environmental stewards of the future. At the very least, children should know how food, fiber, and medicines are produced from plants. School gardens afford a practical yet dynamic opportunity to link children with nature.

As more and more children are raised in harsh urban and biologically banal suburban environments, school gardens are being seen as a natural refuge and discovery site for children. School gardens may be the only link to nature these children experience in their daily lives.

Hands-on Science Education

Educators can no longer explain science concepts to students from a text book. They need to teach "hands-on, minds-on" science techniques. School gardens are useful for this technique since what better context than a garden can children observe natural processes and cycles?

The National Science Foundation agrees and has funded curriculum development for using plants and gardens for science education. Two key organizations funded by NSF include The National Gardening Association in Burlington, Vermont, and Life Lab Science Program in Santa Cruz, California. Both groups have helped create thousands of indoor (using light carts) and outdoor school gardens across the country.

Slide examples: The Gateway School in St. Louis, Missouri created science courtyard garden complete with an archeological dig, math maze, physics garden, and geology time line.

Denali Elementary School in Fairbanks, Alaska, and The Glendale Discovery Garden have created a pond and wildlife garden for hands-on science education.

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Interdisciplinary and Multicultural Education

Creating interrelated curriculum programs has become an educational priority for many school districts. School gardens can function as a teaching nexus to link the natural sciences, history, social studies, art, language, and other subjects. The added aesthetic benefits of gardens beautifying school grounds, make school gardens an excellent investment.

As our country's population becomes every more diversified, educators are searching for ways to teach in a multicultural classroom. School gardens are used as a tool to help foster understanding and respect for various cultures from African-American, to Native American, Hispanic, and Asian.

The Foodworks Program based in Vermont, has a school garden program called Common Roots. From first through eighth grade, children grow a different cultural garden each year including Indigenous Gardens, Heritage Gardens, concluding in the 8th grade with a Sustainable Garden of the Future.

Slide examples: The Cleveland School of the Arts 'virtual garden' was a joint project of the art, math, and biology departments.

Research and Publications

Research, publications, and presentations by leading academics in the area of children's environments have helped influenced the revival of school gardens. They include Robin Moore (North Carolina State University), Roger Hart (City University of New York), Louise Chawla (Kentucky State University) and Mark Francis (University of California, David). Their work suggests that positive and frequent interaction with nature can positively affect a child's future intellectual, emotional, and psychological development, as well as their future environmental attitudes.

Also, the work of ~~Bill Lucas and~~ Learning Through Landscapes is beginning to be more widely disseminated in the U.S., and is inspiring educators to create outdoor learning landscapes.

National Children's Gardening Symposia

National and regional children's gardening symposia, beginning in 1989 at The Brooklyn Botanic Garden in New York City, have greatly helped raise national awareness for the need to create school gardens and beautify school grounds. The American Horticultural Society has sponsored a national children's gardening symposium each year since 1993. The Cleveland Botanical Garden and Cornell University sponsored national school gardening conference in 1996 and 1997 respectively.

Attracting capacity crowds, these events were attended by nearly 3,000 educators, administrators, community organizations, and garden writers which resulting in a good deal of media exposure for this topic.

Slide: American Horticultural Society Children's Gardening Symposium

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Botanical And Public Garden Leadership

There seems to be a kind of "golden age" of children's gardening occurring at botanical and public gardens in the U.S. These institutions are developing extensive gardens designed for children. New York Botanical Garden is constructing an eight million dollar children's discovery garden. The Phipps Conservatory in Pittsburgh, Pennsylvania opened a conservatory courtyard children's garden. Major gardens are also planned at The Denver Botanic Garden in Denver, Colorado and Cleveland Botanical Garden.

The Michigan State University 4-H Children's Garden in East Lansing, Michigan, was the first ever public garden designed just for children. It opened in 1993 and has had a widespread influence for thousands of educators and botanical garden staff. This 3/4 acre garden features more than 60 interactive theme gardens designed to delight and educate children.

In addition to creating children's gardens, botanical gardens are using their expertise to develop teacher training programs and curriculum aimed to improve how horticulture and botany are taught in schools. The Midwest Consortium, a group of five Midwest botanical gardens, have created an exceptionally excellent science curriculum for elementary schools. It will be published and available this year. The program also makes a visit to a botanical garden an important component for science education for all grade levels.

Slide examples: Michigan State University, New York Botanical Garden, Cleveland Botanical Garden.

Butterfly, Wildlife, and Heirloom Gardens

Butterfly gardens, native plant, and heirloom gardens have become an extremely popular phenomenon in the U.S. Many horticultural organizations and publications are promoting this 'ecologically-correct' gardening trend. Schools have joined in and are establishing gardens to attract and sustain butterflies, birds, and other wildlife. Schools are also establishing native plantings for habitat restoration projects. Several national programs including Project Wild and The National Wildlife Federation's Wildlife Habitat program are devoted solely to promoting school wildlife habitats.

Heirloom gardening has also exploded in popularity. Heirlooms are usually defined as any open-pollinated seed in cultivation before 1945. Extensive publicity about the need to rescue and perpetuate unique old seed varieties has resulted in school heirloom gardens. Many of these projects include interdisciplinary education strands which link the history of heirlooms or native plants to the biological principles learned through the restoration projects.

Slide examples:

A butterfly garden at St. Malachy School in a blighted, inner-city Chicago neighborhood. It features a butterfly shape design filled with native prairie plants which attract butterflies. Students and community residents now enjoy the site of rich flower color and butterflies in their city neighborhood.

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The Earthkeepers Program in Madison, Wisconsin helps Midwest schools establish native prairie flower and grass plantings that attract a great diversity of wildlife.

At the Beauvoir Elementary School in Washington, D.C., school children tend a 18th century colonial style herb garden. On special occasions, the children dress in colonial costume to lead tours of the garden.

Students participating in the Medomak Valley High School Heirloom Seed Project in Waldoboro, Maine learn history, horticulture, and job skills in their school garden. Students research, grow, and save seed from heirloom plants. They also gain computer and business skills by publishing and marketing an heirloom seed catalog.

School Market Gardens

Growing produce to sell is becoming fashionable for high school students. Students sell what they've grown to local restaurants, farmer's markets, and grocery stores. Excess produce is donated to food banks.

"Food from the Hood" is a nationally renowned school market garden in Los Angeles, California. Students from Crenshaw High School grow herbs and bottle herbed salad dressings which are sold in grocery stores throughout the city. Profits are used for college scholarships for the students.

Slide example: Cleveland Botanical Garden received a grant from the Harvard Business School Alumni to expand their "Ripe from Downtown" market garden program for high school students.

Nutrition and Food Production Education

School gardens are also being revived to help children learn better nutrition habits. California has begun a state-wide program entitled, "A Garden in Every School". The goal is to develop gardens at all California's thousands of elementary schools by the year 2000. The gardens will teach children the importance of agriculture, food preparation, nutrition, and environmental responsibility. "A Garden in Every School" also links chefs with schools to teach children how to prepare simple, nutritious, and delicious meals.

Special gardening handbooks, curricula, and full-time administrators have helped make this program an educational and public relations success story.

Slide example: The Edible Schoolyard project in Berkeley, California predates the current California initiative. However, it is an excellent example of how to use a school garden for nutrition education.

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Issues and Opportunities

While many schools are developing gardens and beautifying their shoolgrounds, in order to improve all schools, there are important issues and opportunities to consider to sustain the school garden revival.

Improvement of Test Scores
School gardening programs must specifically address how they can help teachers and students achieve state and national education standards - especially those in math and science. Teachers are under pressure to compete with other schools vis a vis testing scores. Unless clear links are demonstrated that gardens can improve test scores, teachers will be hesitant to take on yet another program.

Therefore, more research and curriculum programs are needed that clearly demonstrates how an educational gardening program can improve academic achievement.

Promotion of School Garden Benefits
Beyond academic improvement, educators, administrators, and parents need to learn how gardening can improve youth behavior, attitudes, and health. We who are involved in this movement need to educate our communities on this issue. If more educators and parents realize the myriad benefits of school gardens, or realize that most schools have prison-like grounds, they will be motivated to create gardens and learning landscapes.

Perennials problems such as lack of time, money, space, horticultural knowledge, maintenance, teacher burnout, and vandalism are serious obstacles for many schools. However, there are model projects that have overcome all of these constraints. Educators and parents need to learn about the success stories to understand that school gardens will help, not hinder, schools educate the whole child.

Expansion of national, regional, and local school gardening conferences, training workshops, and dissemination of related materials are needed to reach more educators and other interested individual and groups. Educational, horticultural, and environmental organizations should coordinate their efforts in co-sponsoring these training sessions.

The Internet is proving to be an invaluable source for educators. There are a number of web sites filled with information on how to create, build, use, and fund school gardens.

Gaining Community and Government Support
Schools need to partner with community organization and resources to help them create and sustain gardens. Leadership is especially needed from botanical gardens and other horticultural organizations, environmental groups, and government cooperative extension programs.

Commercial horticulture must take a more active role in promoting and funding school gardens. Since fewer children now garden at home, it is to companies' long-term interest to nurture future gardeners.

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While the current political climate is not ripe for the creation of yet another government program, a central national organization devoted to improving school grounds may be needed for comprehensive change. As in the past Victory Garden program, and the current California sponsored "A Garden in Every School" program demonstrates, a government-led program can be very effective.

We need to have another kind of Victory Garden program for children today. Gardens to help children and communities win victories over crime, drugs, alienation from nature, poor nutrition, etc.

School gardens are so often at the mercy of a single individual who undertakes the task of creating and using a garden. Getting school gardens to become a school-wide responsibility as mandated by state education boards would make gardens less subject to personnel changes.

Building Political Coalitions

The U.S. has several private national programs that promote youth gardening like Life Lab Science Program, The National Gardening Association, American the Beautiful Fund, and Project Wild. These groups should join forces and lobby teacher unions, and local, state, and federal education boards to officially support school gardens and improve school grounds. One unified umbrella group would be stronger than individual voices.

Learning Through Landscapes in England has done a wonderful job of establishing an international coalition of groups interested in improving school grounds. They serve as an excellent model to unify U.S. organizations.

Year-Round Schools

Finally, as more U.S. schools discontinue summer vacation periods to establish year-round schooling, there will be considerable opportunities for creating school gardening programs. Educational summer gardening programs for schools need to be developed to meet this opportunity.

Conclusion

An exciting rediscovery of school gardening programs is underway in the U.S. It is due to the awareness that school gardens are a practical and effective way to connect children with nature, teach hands-on science, environmental education, and beautify barren school grounds.

In order for all U.S. schools to establish gardens, school ground improvement must become an important educational and community priority. This goal could be achieved by the formation of a unified political and educational coalition lobbying for school ground improvement based on evidence that school gardens can improve academic and social behaviors of students.

Support from the government, businesses, botanic gardens and other horticultural and community groups, as well as more teacher training will help transform the school garden fad into being, once again, an important component in a well-rounded education.

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